

What “Seis” are your lines?

by Jason Ray

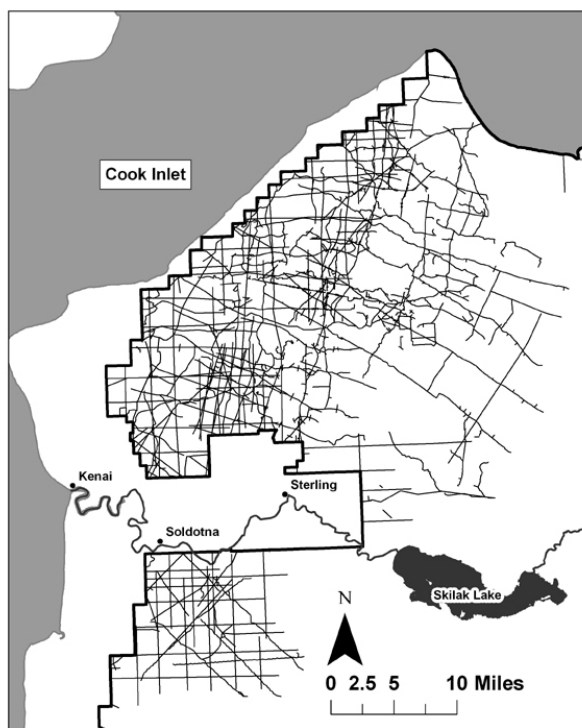


Image map of seismic lines cut for oil and gas exploration from 1950s to 1980s. USFWS/Jason Ray.

I like to drive. I like to get out and explore open roads. I almost get whiplash every time I zoom by a new trail or opening in the forest. “Where does that path lead?” I think to myself. Sometimes I can drive down the trail; sometimes I have to get out and walk. Either way, I am going down the trail to find out where it goes. Most of the time however, I don’t stop to think why that trail is here. If it goes to a certain place the answer is obvious, but what about the trail that ends in the middle of the woods at a seemingly random spot? Back home in Colorado, I usually assume that the trail served as a logging road, but, on the Kenai National Wildlife Refuge, a dead-end trail is more likely a reminder of oil and gas exploration in years gone by.

In the 1950s, oil companies began speculating about oil on refuge lands (then known as the Kenai National Moose Range). This speculation paid off for the

Richfield Oil Corporation in 1957, when they drilled a well that produced commercial quantities of oil near the Swanson River.

The importance of this discovery was many-fold for Alaska and the Kenai. While small amounts of oil had been previously found in Alaska, this was the first big strike. The revenue from Kenai oil helped Alaska make the push for statehood. The oil strike also attracted numerous oil companies to the area for more seismic exploration.

Seismic exploration uses sound waves to map the underlying layers which can trap pockets of oil. Microphones (called geophones) are strung out thousands of feet from a shot point, where an explosive blast or a mechanical vibrator creates sound waves which are reflected off the underlying layers, like radar waves.

Early seismic surveys made straight cuts (seis lines) across the countryside with a bulldozer, so that electrical cables could be stretched from one geophone to the next. Usually the bulldozer work was done in the winter when the ground was frozen.

In the competitive frenzy to find new oil, much of the early exploration was done without any regard for clean-up or restoration of the damaged landscape.

Fortunately, as time passed, exploration technology improved, refuge policies tightened up, and seismic exploration became less invasive. Nevertheless, evidence of old seismic lines still marks the refuge. There are approximately 1,850 miles of seismic lines on the refuge, concentrated primarily on the northern half. Not all the lines represent bulldozed trails, but each line represents some kind of disturbance to the landscape.

Many of the seismic lines have melted away into the landscape as the vegetation has regrown. However, some of the lines have persisted as trails which have provided the public with the opportunity to access areas of the refuge that were previously inaccessible. The seis lines have indeed opened a whole new world for curious people like me to explore. From the human point of view, the seis lines are great because they provide access to areas and wildlife that would otherwise be beyond the reach of the ordinary mortal

hiker or hunter.

The refuge is a great place for people to recreate and to interact with wildlife, but, recreation is only a secondary purpose for the refuge. Foremost, the refuge is protected habitat for the peninsula's diverse wildlife. Whether seismic lines and other trails on the refuge are good or bad for the wildlife probably depends on the species, the time of year, and any number of other variables. For example, on a recent trip, I saw plenty of evidence of moose using the trail I was on, but on the same trip, I was responsible for displacing a moose as I made my way down the trail. Both predators and prey can be found on the trails, and there are

advantages and disadvantages for both kinds of critters.

Regardless of their source or impact, trails are more or less permanent fixtures on the refuge landscape, and over time refuge management has learned to be very cautious about opening up new trails on this landscape.

Jason Ray is an intern at the Kenai National Wildlife Refuge. His internship has focused on documenting seismic trails for the Refuge's computerized Geographic Information System (GIS) database. Previous Refuge Notebook columns can be viewed on the Web at <http://www.fws.gov/refuge/kenai/>.